ABSTRACT OF THE DISCLOSURE

A network management system and technique, implemented in hardware and software, automates certain aspects of a network element configuration in a network of routers that use the OSPF protocol. The network management system uses network wide configuration information to detect configuration deficiencies and configuration related intra-element dependencies, and to then configure the elements automatically. This includes automatically detecting and configuring OSPF virtual links under several different scenarios, including (a) either minimal or complete (redundant) configuration of a router that is newly added to an existing network, and (b) reconfiguring of the routers in an existing OSPF domain, when either minimal or complete configuration is required. Minimal configuration is attained when at least one area border router (ABR) in an area is guaranteed to be connected to a backbone. In a complete configuration, all ABR's in an area are guaranteed to be connected to the backbone. System functionality includes determination of whether a router is an ABR, sequential analysis of routers (and their neighbors) to determine connection to a network backbone, and analysis of routers (and their neighbors) to determine if a virtual link to the backbone can be established. Advantageously, changes in the OSPF protocol are not required.

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